Objective fsd-1
Paper Code
8485

Intermediate Part Second - 502

CHEMISTRY (Objective) GROUP - I

Time: 20 Minutes Marks: 17

Roll No. : __________

Q.No.1 You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill the relevant circle in front of that question number on computerized answer sheet. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero marks in that question. Attempt as many questions as given in objective type question paper and leave other circles blank.boe

S.#	Questions	A	B	C	D
1	Vinyl acetylene combines with HCℓ to form:	Poly acetylene	Chloroprene	Benzene	Divinyl acetylene
2	Which set of hybrid orbitals has planar triangular shape?	sp^2	sp^3	sp	dsp^2
3	Coordination number of Pt in $[Pt\,C\ell(NO_2)(NH_3)_4]$ is:	02	04	01	06
4	Chlorine heptaoxide ($C\ell_2O_7$) reacts with water to form:	Hypochlorous acid	Chloric acid	Perchloric acid	Chlorine and oxygen
5	Which catalyst is used to contact process?	V_2O_5	Fe_2O_3	SO_3	Ag_2O
6	Which element is not present abundantly in earth's crust?	Si	Aℓ	Na	O
7	The oxide of beryllium is:	Acidic	Basic	Neutral	Amphoteric
8	Among alkali metal ions, minimum hydration energy is shown by:	Li^+	Na^+	Rb^+	K^+
9	Half of the atmospheric mass is concentrated in the lower:	5.6 km	10.6 km	15.6 km	20.6 km
10	The pH range of the acid rain is:	7 – 6.5	6.5 – 6	6 – 5.6	Less than 5
11	Phosphorus helps the growth of:	Root	Leave	Stem	Seed
12	Which is an addition polymer?	Nylon 6-6	Terylene	Polystyrene	Epoxy resin
13	Acetic acid was first isolated from:	Milk	Vinegar	Butter	Red ant
14	Cannizzaro's reaction is not given by:	Acetaldehyde	Formaldehyde	Benzaldehyde	Trimethyl acetaldehyde
15	Which enzyme is not involved in fermentation of starch?	Diastase	Zymase	Urease	Invertase
16	For which Mechanism, the first step involved is the same?	E1 and E2	E2 and S_N2	S_N1 and E2	E1 and S_N1
17	During nitration of benzene, the active nitrating agent is:	NO_2	HNO_3	NO	NO_2^+

311-XII122025-40000

Intermediate Part Second

Roll No. ____________

CHEMISTRY (Subjective) GROUP - I

Time: 02:40 Hours Marks: 68

SECTION – I

16

2. Write short answers to any EIGHT parts.

(i) Why the size of cation is smaller than that of parent atom?
(ii) ZnO oxide is amphoteric oxide. Justify with two reactions.
(iii) Write any two uses of gypsum in industry.
(iv) Write two major problems during manufacturing of NaOH in diaphragm cell.
(v) Write four uses of borax.
(vi) Why are liquid silicones preferred over ordinary organic lubricants?
(vii) Write any four uses of H_2SO_4.
(viii) Write four similarities of oxygen and sulphur.
(ix) Why does damaged tin plated iron get rusted quickly?
(x) What is sacrificial corrosion?
(xi) What are fertilizers? Why they are needed?
(xii) Write any four essential qualities of good fertilizer.

3. Write short answers to any EIGHT parts.

(i) Why iodine has metallic luster?
(ii) Give any four uses of bleaching powder.
(iii) Define functional group and give two examples.
(iv) What is metamerism? Give example.
(v) What is Clemmensen reduction? Give one example.
(vi) How is mustard gas prepared? Give its use.
(vii) How does ethyne react with water in the presence of $HgSO_4/H_2SO_4$
(viii) Write a method for preparation of ethyl magnesium bromide in laboratory.
(ix) What are β-eliminations reactions?
(x) Differentiate between conjugated and derived proteins.
(xi) Write structure of cholesterol.
(xii) Give two difference between DNA and RNA.

4. Write short answers to any SIX parts.

(i) What happens when [illegible] is passed through benzene in sunlight?
(ii) Convert benzene into glyoxal.
(iii) Give IUPAC name: (a) $CH_3-CH(OH)COOH$ (b) $CH_2(OH)-CH_2(OH)$
(iv) Define fermentation. Give its necessary conditions.
(v) Convert ethanal into ethanol.
(vi) What are Zwitter ions? Give example.
(vii) What is glacial acetic acid? Why is it called so?
(viii) How acid rain affects our environment? Briefly discuss.
(ix) What are leachates? Briefly explain.

SECTION – II Attempt any THREE questions. Each question carries 08 marks.

5. (a) Discuss the position of hydrogen on top of group IA. (four similarities and four differences)
(b) Write applications of aluminium. (any eight)

6. (a) Write the formulas of these minerals: (i) Dolomite (ii) Asbestos (iii) Epsom salt (iv) Sylvite
(b) Define corrosion. Explain electrochemical theory of corrosion.

7. (a) What is orbital hybridization? Explain structure of ethane on the basis of sp^3-hybridization?
(b) Explain mechanism of S_N1 reactions with a suitable example.

8. (a) Describe the Kolbe's electrolytic method for the preparation of alkenes along with mechanism.
(b) Explain Cannizzaro's reaction with the help of mechanism of formaldehyde.

9. (a) What are Friedel craft alkylation reaction? Give its mechanism.
(b) Give the reaction of phenol with: (i) HNO_3 (ii) H_2SO_4 (iii) CH_3COCl (iv) Br_2 water

311-XII122-40000

Roll No. ______________________ (To be filled in by the candidate)

(Academic Sessions 2018 – 2020 to 2020 – 2022)

CHEMISTRY 222-(INTER PART – II) Time Allowed : 2.40 hours

PAPER – II (Essay Type) GROUP – I Maximum Marks : 68

SECTION – I

2. Write short answers to any EIGHT (8) questions : **16**

(i) Lanthanide contraction controls the atomic sizes of element of 6^{th} and 7^{th} period. Comment.

(ii) Why is the oxidation state vary in a period but remain almost constant in a group?

(iii) Point out the two advantages of Down's cell.

(iv) Why 2% Gypsum is added in the cement?

(v) Give two uses of silicones.

(vi) Give any four uses of silicates.

(vii) Why does aqua regia dissolve gold and platinum?

(viii) Describe ring test for the confirmation of the presence of nitrate ions in solution.

(ix) What is chromyl chloride test?

(x) Write down the any two uses of potassium dichromate.

(xi) Describe the composition of portland cement.

(xii) What are phosphatic fertilizers? Give one example.

3. Write short answers to any EIGHT (8) questions : **16**

(i) What is disproportionation reaction? Give example.

(ii) What are Freon and Teflon?

(iii) What is carbonization of coal?

(iv) What is steam cracking?

(v) 1-alkyne behave as weak acid. Give reason.

(vi) How will you convert methane into ethane?

(vii) Give mechanism of Kolbe's electrolytic method for the preparation of ethane.

(viii) Why dry ether is used for the preparation of Grignard's reagent?

(ix) Differentiate between E1 and E2 reaction with any two points.

(x) Define co-polymer. Give example.

(xi) What is meant by iodine number?

(xii) Differentiate between DNA and RNA.

4. Write short answers to any SIX (6) questions : **12**

(i) Write down the structural formula of two fused rings aromatic hydrocarbons (Two examples).

(ii) What is Wurtz-Fitting reaction? Give an example.

(iii) Describe one method for preparing phenol.

(iv) Why ethanol has higher boiling point than diethyl ether?

(v) How does acetaldehyde reacts with : (i) C_2H_5MgI (ii) $K_2Cr_2O_7 / H_2SO_4$

(Turn Over)

4. (vi) How acetic acid is prepared from methyl nitrile?
   (vii) How amino acids are prepared by the stretcher synthesis?
   (viii) How is oil spillage affecting marine life?
   (ix) How water is purified by aeration?

SECTION – II

Note : Attempt any THREE questions.

5. (a) What are the improvements in the Mendeleev's periodic table? 4
   (b) What are silicates? How sodium silicate is prepared? Give its two uses. 4
6. (a) Explain the peculiar behaviour of Lithium, give any eight points. 4
   (b) Discuss the following properties of transition elements : (i) Paramagnetism. (ii) Colour. 4
7. (a) Describe the structure of ethene by sp^2 hybridization. 4
   (b) Discuss briefly the two possible mechanisms of β-elimination reaction. Write any four differences of E2 and E1 reaction. 4
8. (a) Convert acetylene to : (i) Vinyl acetylene. (ii) Divinyl acetylene. (iii) Benzene. (iv) Acetaldehyde. 4
   (b) Describe these test : (i) Fehling's solution test. (ii) Tollen's test. 4
9. (a) Describe the structure of Benzene on the basis of atomic orbital treatment. 4
   (b) Explain the acidic behaviour of phenol. 4

HEMISTRY (Intermediate Part-II , Class 12th) 422 - (IV) Paper II (Group – I)

Time: 20 Minutes **OBJECTIVE** ..... **Code: 8487** Marks: 17

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that circle in front of that question number. Use marker or pen to fill the circles. Cutting or filling two or more circles will result in zero mark in that question. Attempt as many questions as given in objective type question paper and leave others blank.

1\. 1. The reaction between fat and NaOH is called ______ .
(A) esterification (B) hydrolysis (C) saponification (D) fermentation

2\. Oxidation of NO in air produces ______ .
(A) N_2O (B) N_2O_3 (C) N_2O_4 (D) N_2O_5

3\. Excess of ethyl bromide reacts with NH_3 to give the final product ______ .
(A) $(C_2H_5)NH_2+HBr$ (B) $(C_2H_5)_2NH+HBr$
(C) $(C_2H_5)_3N+HBr$ (D) $[(C_2H_5)_4N^+]Br^-$

4\. Select the compound that shows cis-trans isomerism?
(A) 1-butene (B) 1-butyne (C) propene (D) 2-butene

5\. Least melting point will be of ______ element.
(A) Be (B) Mg (C) Ca (D) Sr

6\. Select from the following that is not a calcarious material.
(A) lime (B) clay (C) marble (D) marine shell

7\. Vinyl acetylene reacts with HCl to form ______ .
(A) polyacetylene (B) benzene (C) chloroprene (D) divinyl acetylene

8\. The electrophile in aromatic sulphonation is ______ .
(A) SO_3^+ (B) HSO_4^- (C) H_2SO_4 (D) SO_3

9\. Cannizzaro's reaction is not given by ______ .
(A) HCHO (B) CH_3CHO (C) C_6H_5CHO (D) $(CH_3)_3C.CHO$

10\. Which of the following is a typical transition element?
(A) Sc (B) Y (C) Ra (D) Co

11\. Which metal is used in thermite process because of its reactivity?
(A) iron (B) copper (C) aluminium (D) zinc

12\. The pH range of acid rain is ______ .
(A) 7 – 6.5 (B) 6.5 – 6 (C) less than 5 (D) 6 – 5.6

13\. Which of the following is known as wood spirit?
(A) methanal (B) methanol (C) methanoic acid (D) ethanol

14\. The element Caesium bears resemblance with ______ .
(A) Ca (B) Cr (C) both of these metals (D) none of these metals

15\. To avoid the formation of toxic compounds with chlorine which substance is used for disinfecting water?
(A) ozone (B) $KMnO_4$ (C) alums (D) chloramines

16\. Which is the strongest acid?
(A) HClO (B) $HClO_2$ (C) $HClO_3$ (D) $HClO_4$

17\. The ester used for orange flavour in juice is ______ .
(A) otyl acetate (B) benzylacetate (C) ethyl butyrate (D) amylacetate

315-(IV)-422-33000

HEMISTRY (Intermediate Part-II, Class 12th) 422 Paper II (Group – I)

Time: 2:40 Hours

SUBJECTIVE

Marks: 68

Note: Section I is compulsory. Attempt any THREE (3) questions from Section II.

(SECTION – I)

2. Write short answers to any EIGHT questions. (2 x 8 = 16)

- i. Why oxidation state of noble gases is usually zero?
- ii. Why metallic character increases from top to bottom in group?
- iii. Define alkali and alkaline earth metals.
- iv. Why is the aqueous solution of Na_2CO_3 alkaline in nature?
- v. Write down four uses of silicones.
- vi. Why CO_2 is acidic in character?
- vii. How does nitrogen differ from other elements of its group?
- viii. Give methods of preparation of PCl_3.
- ix. How chromate ions are converted into dichromate ions?
- x. Define ligand. Give one example.
- xi. Discuss ammonia as a fertilizer.
- xii. Define cement. Write down names of its important raw materials.

3. Write short answers to any EIGHT questions. (2 x 8 = 16)

- i. Why HF is weak acid than that of HI?
- ii. Write down any four uses of bleaching powder.
- iii. Define cis-trans isomerism. Give one example.
- iv. How wood can be converted into anthracite?
- v. How will you convert i) Ethene into ethane ii) Ethyne into ethene
- vi. How does propyne react with the following reagents?
  i) $AgNO_3 / NH_4OH$ ii) Cu_2Cl_2 / NH_4OH
- vii. Why alkenes are more reactive than alkanes?
- viii. Write down any two differences between E_1 and E_2 reactions.
- ix. What is Grignard reagent? How it can be prepared?
- x. Define proteins. Give any two importance of proteins.
- xi. Define iodine number and acid number.
- xii. Write down any four importance of lipids.

4. Write short answers to any SIX questions. (2 x 6 = 12)

- i. Give the mechanism of sulphonation of benzene.
- ii. Give two methods for the preparation of benzene in laboratory.
- iii. How phenol reacts with dil. and conc. HNO_3?
- iv. Dehydration of ethyl alcohol occur under different conditions. Give reactions.

(Turn Over)

v. Give any four uses of formaldehyde.

vi. How would you convert acetic acid into i) acetyl chloride ii) acetic anhydride

vii. What are essential and non-essential amino acids?

viii. What are primary pollutants? Give examples.

ix. Give any four causes of water pollution.

(SECTION - II)

Note: Attempt any THREE (3) questions from Section II.

5. (a) Define the oxides. Classify the oxides on the basis of their acidic and basic character. (4)

   (b) Discuss briefly triplumbic tetraoxide (Pb_3O_4) and lead dioxide (PbO_2). 2+2 (4)

6. (a) Write down any eight points regarding the peculiar behaviour of lithium. (4)

   (b) Explain the electrochemical theory of corrosion. (4)

7. (a) What is orbital hybridization? Explain SP^3 hybridization with example. (4)

   (b) Define nucleophillic substitution reaction and discuss the S_N1 reaction in detail. (4)

8. (a) Discuss the Kolbe's electrolysis method for the preparation of alkene. (ethene) (4)

   (b) Explain the mechanism of cannizzaro's reaction with one example. (4)

9. (a) How will you prepare benzene from 1x4 (4)

   i) cyclohexane ii) n-hexane

   iii) phenol iv) acetylene

   (b) Define alcohols. How different types of alcohols are differentiated by Lucas test. 1+3 (4)

315-422-33000

BWP G-1

Roll No.

Chemistry

Make Diagram where necessary.

Part - I   22 x 2 = 44

Q.No.2
(i) Give two defects of Mendeleev's Periodic Table.
(ii) Why Negative Ion is larger than Parent Atom ?
(iii) Give the Chemistry of Borax Bead Test.
(iv) Why 2 % Gypsum is added in the Cement ?
(v) Give four uses of Borax.
(vi) What is Chemical Garden ?
(vii) Give the name and formula of two Oxides of Nitrogen.
(viii) Give reaction of **Zn** with **dil** and **conc. HNO_3**
(ix) What are Typical and Non - Typical Transition Elements ?
(x) Why Transition Metal show variable Oxidation State ?
(xi) What are the essential qualities of Good Fertilizer ?
(xii) Enlist non- woody raw material for the manufacturing of paper.

Q.No.3
(i) How XeF_6 reacts with : (a) H_2O (b) SiO_2
(ii) What are Freons and Teflon ?
(iii) Explain how Octane number of Gasoline is improved by reforming ?
(iv) What is Knocking ? How can we reduce it ?
(v) How will you synthesize the following compounds starting from Ethyne :
(a) Acetaldehyde (b) Methyl Nitrile
(vi) Convert Ethene to Ethyne.
(vii) Write a note on the Acidity of Ethyne.
(viii) How is Acetylene prepared on Industrial Scale ?
(ix) How will you convert $CH_3COOH \longrightarrow CH_3CH_2COOH$
(x) Define Iodine Number.
(xi) What are Steroids ? Draw the general structural formula of a Steroid.
(xii) Write down the structure of Cholesterol.

Q.No.4
(i) Describe the Catalytic Oxidation of Benzene.
(ii) What information do we get from x - ray analysis of Benzene ?
(iii) Write down four uses of Ethanol.
(iv) How Ethers are prepared by Williamson's Synthesis ?
(v) Describe the reactivity of Carbonyl Functional Group.
(vi) How Alkanenitriles are prepared ? Convert them to Carboxylic Acid.
(vii) What are essential and non - essential Amino Acids ?
(viii) Name four components of Environment.
(ix) How Chlorofluorocarbons destroy the Ozone Layer ?

Part - II   3 x 8 = 24

Q.No.5 (a) Explain similarities of Hydrogen with Halogens and dissimilarities with Alkali Metals. (4)
(b) Write a note on Aluminium Silicate. (4)

Q.No.6 (a) What will happens when : (i) Lithium Carbonate is heated (ii) Lithium Hydroxide is heated (iii) Lithium reacts with Nitrogen (iv) Lithium burns in air (4)
(b) Give two methods for the preparation of : (i) Potassium Chromate (ii) Potassium Dichromate (4)

Q.No.7 (a) Define Functional Group. Write names of three functional groups that have Nitrogen Atom. (4)
(b) How does Ethyl Magnesium Bromide react with followings :
(i) CO_2 (ii) H_2O (iii) CH_3CHO (iv) Cyanogen Chloride (4)

Q.No.8 (a) Describe the Kolbe's Electrolytic Method for the preparation of Ethyne. (4)
(b) What is Cannizzaro's Reaction ? Give its mechanism. (4)

Q.No.9 (a) What are Symmetrical and Non - Symmetrical Ethers ? Give any two preparation reactions of Ethers. (4)
(b) Give the reaction Mechanism of Friedel - Craft : (i) Alkylation (ii) Acylation (4)

Time: 2:40 Hours

Note: Section I is compulsory. Attempt any THREE (3) questions from Section

SECTION – I

2. Write short answers to any EIGHT questions. (2 x 8

i. Why oxidation state of noble gases is usually zero?

ii. Why metallic character increases from top to bottom in group?

iii. Define alkali and alkaline earth metals.

iv. Why is the aqueous solution of Na_2CO_3 alkaline in nature?

v. Write down four uses of silicones.

vi. Why CO_2 is acidic in character?

vii. How does nitrogen differ from other elements of its group?

viii. Give methods of preparation of PCl_3.

ix. How chromate ions are converted into dichromate ions?

x. Define ligand. Give one example.

xi. Discuss ammonia as a fertilizer.

xii. Define cement. Write down names of its important raw materials.

3. Write short answers to any EIGHT questions. (2 x 8 =

i. Why HF is weak acid than that of HI?

ii. Write down any four uses of bleaching powder.

iii. Define cis-trans isomerism. Give one example.

iv. How wood can be converted into anthracite?

v. How will you convert i) Ethene into ethane ii) Ethyne into ethene

vi. How does propyne react with the following reagents?

i) $AgNO_3 / NH_4OH$ ii) Cu_2Cl_2 / NH_4OH

vii. Why alkenes are more reactive than alkanes?

viii. Write down any two differences between E_1 and E_2 reactions.

ix. What is Grignard reagent? How it can be prepared?

x. Define proteins. Give any two importance of proteins.

xi. Define iodine number and acid number.

xii. Write down any four importance of lipids.

4. Write short answers to any SIX questions. (2 x

i. Give the mechanism of sulphonation of benzene.

ii. Give two methods for the preparation of benzene in laboratory.

iii. How phenol reacts with dil. and conc. HNO_3?

iv. Dehydration of ethyl alcohol occur under different conditions. Give reactions.

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v. Give any four uses of formaldehyde.

vi. How would you convert acetic acid into i) acetyl chloride ii) acetic anhydride

vii. What are essential and non-essential amino acids?

viii. What are primary pollutants? Give examples.

ix. Give any four causes of water pollution.

(SECTION - II)

Note: Attempt any THREE (3) questions from Section II.

5. (a) Define the oxides. Classify the oxides on the basis of their acidic and basic character.
   (b) Discuss briefly triplumbic tetraoxide (Pb_3O_4) and lead dioxide (PbO_2).

6. (a) Write down any eight points regarding the peculiar behaviour of lithium.
   (b) Explain the electrochemical theory of corrosion.

7. (a) What is orbital hybridization? Explain SP^3 hybridization with example.
   (b) Define nucleophillic substitution reaction and discuss the S_N1 reaction in detail.

8. (a) Discuss the Kolbe's electrolysis method for the preparation of alkene. (ethene)
   (b) Explain the mechanism of cannizzaro's reaction with one example.

9. (a) How will you prepare benzene from
   i) cyclohexane ii) n-hexane
   iii) phenol iv) acetylene
   (b) Define alcohols. How different types of alcohols are differentiated by Lucas test.

Paper Code Number: 4481

Roll No. 507426

2022 (A)

INTERMEDIATE PART-II (12th CLASS)

CHEMISTRY PAPER-II GROUP-I

TIME ALLOWED: 20 Minutes
MAXIMUM MARKS: 17

OBJECTIVE

Note: You have four choices for each objective type question as A, B, C and D. The choice which you think is correct, fill that bubble in front of that question number, on bubble sheet. Use marker or pen to fill the bubbles. Cutting or filling two or more bubbles will result in zero mark in that question. No credit will be awarded in case BUBBLES are not filled. Do not solve question on this sheet of OBJECTIVE PAPER.

Q.No.1

(1) Mark the correct statement
(A) All lanthanides are present in the same group (B) All halogens are present in the same period
(C) All alkali metals are present in the same group (D) All noble gases are present in the same period

(2) Which of the following sulphates is not soluble in water?
(A) Sodium sulphate (B) Potassium sulphate (C) Zinc sulphate (D) Barium sulphate

(3) Which element belongs to group IVA of periodic table?
(A) Ba (B) I (C) Pb (D) O

(4) The brown gas formed, when metal reduces HNO_3 to
(A) N_2O_5 (B) N_2O_3 (C) NO_2 (D) NO

(5) Which is the strongest acid?
(A) $HClO$ (B) $HClO_2$ (C) $HClO_3$ (D) $HClO_4$

(6) Group VIB of transition elements contains
(A) Zn, Cd, Hg (B) Fe, Ru, Os (C) Cr, Mo, W (D) Mn, Te, Re

(7) Ethers show the phenomenon of:
(A) Position isomerism (B) Functional group isomerism (C) Metamerism (D) Cis-trans Isomerism

(8) Synthetic rubber is made by the polymerization of:
(A) Chloroform (B) Acetylene (C) Divinylacetylene (D) Chloroprene

(9) Benzene can not undergo
(A) Substitution (B) Addition (C) Oxidation (D) Elimination

(10) For which mechanisms, the first step involved is the same
(A) E_1 and E_2 (B) E_2 and S_N2 (C) S_N1 and E_2 (D) E_1 and S_N1

(11) Ethanol can be converted to ethanoic acid by:
(A) Hydrogenation (B) Hydration (C) Oxidation (D) Fermentation

(12) Which of following will react with both aldehydes and ketones?
(A) Grignard reagent (B) Tollen's reagent (C) Fehling's reagent (D) Benedict's reagent

(13) Which reagent reduces carboxylic acid to an alcohol?
(A) H_2/Ni (B) H_2/P_t (C) $NaBH_4$ (D) $LiAlH_4$

(14) Which of these polymers is an addition polymer?
(A) Nylon-6, 6 (B) Polystyrene (C) Terylene (D) Epoxy resin

(15) Which is not calcarious material?
(A) Lime (B) Clay (C) Marble (D) Marine shell

(16) Stratosphere region has range of:
(A) 0 - 15 km (B) 15 - 20 km (C) 0 - 5 km (D) 15 - 40 km

(17) Residence time of NO in atmosphere is:
(A) 1 day (B) 2 days (C) 3 days (D) 4 days

23(Obj)(☆)-2022(A)-20000 (MULTAN)

2022 (A) Roll No: ____________

INTERMEDIATE PART-II (12th CLASS)

CHEMISTRY PAPER-II GROUP-I

TIME ALLOWED: 2.40 Hours

SUBJECTIVE

MAXIMUM MARKS: 68

NOTE: Write same question number and its part number on answer book, as given in the question paper.

SECTION-I

2. Attempt any eight parts. 8 × 2 = 16

(i) Why ionization energy decreases down the group?
(ii) Why is the 2nd electron affinity of an element positive?
(iii) Give any two uses of lime in industry.
(iv) Write down the chemical formulas of minerals: (a) Chile Saltpetre (b) Barite
(v) Write down the chemical reaction of Aluminium with: (a) HCl (b) [illegible]
(vi) Describe Borax bead Test.
(vii) Why is SO_3 dissolved in H_2SO_4 and not in water?
(viii) How does Nitrogen differ from other elements of its own group?
(ix) Why oxidation state of transition elements are variable?
(x) What are typical and non-typical transition elements?
(xi) What are macronutrients and micronutrients?
(xii) What are potassium fertilizers? Give one example.

3. Attempt any eight parts. 8 × 2 = 16

(i) Give two uses of chlorine.
(ii) Why solubility of noble gases increases in water?
(iii) Define Cis and trans Isomerism.
(iv) What is meant by hybridization? Mention its types.
(v) Why alkanes are called paraffin?
(vi) How will you differentiate between ethane and ethene chemically by one test?
(vii) How does ethyne react with: (a) Alkaline $KMnO_4$ (b) 10% H_2SO_4 in the presence of $HgSO_4$
(viii) How would you prepare primary alcohol with the help of Grignard's reagent?
(ix) Give two methods for the preparation of alkyl Halide from alcohol.
(x) What is rancidity of fat and oil?
(xi) Describe condensation polymerization with example.
(xii) Give open and close structure formula of Glucose.

4. Attempt any six parts. 6 × 2 = 12

(i) Give the chemical equations for the conversion of Benzene into Maleic acid.
(ii) Define resonance and write down resonance structure of Benzene.
(iii) Explain esterification with example.
(iv) How will you convert Ethanol into Isopropyl alcohol?
(v) How would you bring about the following conversion? Methanol into Ethanal
(vi) Write down the structural formula for any two neutral amino acids.
(vii) How acetic acid is prepared by Grignard's Reagent?
(viii) How detergents cause water pollution?
(ix) What are Leachates?

SECTION-II

NOTE: Attempt any three questions. 8 × 3 = 24

5.(a) Define hydration energy with an example. Give its variation in periodic table. 4
(b) How does aluminum react with: (i) Hydrogen (ii) Halogens (iii) Nitrogen (iv) [illegible] 4

6.(a) Describe the preparation of sodium metal by Down's cell with diagram. 4
(b) Define Corrosion. Explain electrochemical theory of corrosion. 4

7.(a) Define SP^2 and SP^3 hybridization. Give one example in each case. 4
(b) What are E - Elimination reactions? Discuss their types.
Write any three differences between [illegible] and [illegible] 4

8.(a) Prepare alkene from following classes of organic compounds. 1 × 4 = 4
(i) Alkyl Halide (ii) Alcohols (iii) Vicinal dihalide (iv) Alkynes
(b) How does acetaldehyde react with following compounds: 1 × 4 = 4
(i) $NaHSO_3$ (ii) HCN (iii) Iodine and $NaOH$ (iv) NH_2OH

9.(a) What is sulphonation of Benzene? Give its mechanism. 4
(b) How will you distinguish between primary, secondary and tertiary alcohols by Lucas test? Give the reactions. 4

circle in front of that Question No. Use Marker or pen to fill the circles. Cutting or filling two or more circles will result in Zero Mark in that Question.

BWP G-1

Q.No.1	Mark the correct statement :
(1)	(A) The Ionization Energy of Calcium is lower than that of Barium. (B) The Ionization Energy of Calcium is lower than that of Magnesium. (C) The Ionization Energy of Calcium is higher than that of Beryllium. (D) The Ionization Energy of Calcium is lower than that of Strontium.
(2)	Out of all the elements of Group VA, the highest ionization energy is possessed by : (A) N (B) P (C) Sb (D) Bi
(3)	Tincal is a mineral of : (A) Al (B) B (C) Si (D) C
(4)	Which one of the following is not an Alkali Metal (A) Francium (B) Caesium (C) Rubidium (D) Radium
(5)	Which of the following Hydrogen Halide is the weakest acid in solution : (A) HF (B) HBr (C) HI (D) HCl
(6)	Preparation of Vegetable Ghee Involves : (A) Halogenation (B) Hydrogenation (C) Hydroxylation (D) Dehydrogenation
(7)	The state of Hybridization of Carbon Atom in Methane is : (A) sp^3 (B) sp (C) sp^2 (D) dsp^2
(8)	Which of the following is a non-typical transition element : (A) Cr (B) Mn (C) Zn (D) Fe
(9)	Benzene Molecule contains : (A) Three Double Bonds (B) Two Double Bonds (C) One Double Bond (D) Delocalized $\pi - electron\ charge$
(10)	Which of the following will have the highest boiling point : (A) Methanal (B) Ethanal (C) Propanal (D) 2-Hexanone
(11)	Which compound shows Hydrogen Bonding : (A) C_6H_6 (B) C_2H_5Cl (C) CH_3-O-CH_3 (D) C_2H_5-OH
(12)	In Primary Alkyl Halides, the Halogen Atom is attached to a Carbon which is further attached to how many Carbon Atoms : (A) 2 (B) 3 (C) 1 (D) 4
(13)	Acetic Acid is manufactured by : (A) Distillation (B) Fermentation (C) Ozonolysis (D) Esterification
(14)	Peroxyacetylnitrate is an irritant to human beings and it affects : (A) Eyes (B) Ears (C) Stomach (D) Nose
(15)	Which three elements are needed for the healthy growth of plants (A) N, S, P (B) N, Ca, P (C) N, P, K (D) N, K, C
(16)	Which of these Polymers is an Addition Polymer : (A) nylon-6, 6 (B) Polystyrene (C) Terylene (D) Epoxy Resin
(17)	The pH range of the Acid Rain is : (A) 7 - 6.5 (B) 6.5 - 6 (C) 6 - 5.6 (D) less than 5

CHEMISTRY

PAPER : PART – II | 022/1 | (Group – I)

MARKS: [illegible] | INTERMEDIATE

TIME: 2:40 [illegible]

(SUBJECTIVE PART)

Note: Attempt any TWENTY TWO (22) short questions in all selecting eight from Q. [illegible] each and [illegible] from Q. 4 (22 x 2 = 44)

SECTION – I

2- Write short answers of any eight questions. (2 x 8 = 16)

i	Why metallic character increases from top to bottom in a group?	ii	What is Lanthanide contraction?
iii	Give the formula of the following: (a) Spodumene (b) Magnesite	iv	What happens when (a) Lithium carbonate is heated (b) Berylium is treated with sodium hydroxide
v	Why aqua regia dissolve gold and platinium?	vi	Name the allotropic forms of phosphorus.
vii	Write the chemistry involved in Borax bead test.	viii	How Aluminum reacts with non metals?
ix	How chromate ions are converted into dichromate ions?	x	What are the typical and non typical transition metals?
xi	Write the stages involved in the manufacturing of portland cement.	xii	Write the woody raw material used in the manufacturing of paper.

3- Write short answers of any eight questions. (2 x 8 = 16)

i	How the octane number of alkanes can be improved?	ii	Define functional group. Give two examples.
iii	What is Iodized salt?	iv	Define Disproportionation reaction. Give an example.
v	Convert Ethyne into Glyoxal.	vi	State Markownikov's rule. Give an example.
vii	Write down four uses of Ethyne.	viii	Define electrphile and Nucleophile.
ix	Give the reaction of Grignard reagent with Methanal.	x	What is saponification. Give reaction.
xi	Define polysaccharides. Give two examples.	xii	How polyvinyl chloride (PVC) is prepared. Give its uses.

4- Write short answers of any six questions. (2 x 6 = 12)

i	How straight chain structure was ruled out for benzene (any two points).	ii	Convert n-Heptane to toluene.
iii	How does ethyl alcohol react with; (a) $SoCl_2$/Pyridine (b) NH_3/THO_2.	iv	Why and how alcohol is denatured?
v	What is formalin? How is it prepared?	vi	What is peptide bond? Give formula of a dipeptide.
vii	Write down structural formula of; (a) Valeric acid (b) Acetic anhydride	viii	Briefly discuss recycling of waste by deploymerization.
x	What is chemical oxygen demand? How does it tell the Quality of water?		

SECTION – II

Note:- Attempt any three questions. (8 x 3 = 24)

5- (a) Write comprehensive note on ionization energy. (04)

(b) Discuss peculiar Behaviour of Boron. (04)

6- (a) Describe role of lime in industries. Write only eight points. (04)

(b) Write down the reactions of $KMnO_4$ with (04)

(i) H_2S (ii) $FeSO_4$ (iii) Oxalic acid (iv) KOH

7- (a) Define hybridization. Also explain Sp2 mode of hybridization with example of ethene. (04)

(b) Using ethyl bromide as a starting material prepare following (04)

(i) Ethyl cyanide (ii) Ethene (iii) Nitroethane (iv) Ethyl acetate

8- (a) How addition of Halogens to alkenes takes place. Give the mechanism of reaction. (04)

(b) Define Cannizzaro's reaction. Explain its mechanism with a suitable example. (04)

9- (a) Write a note on sulphonation of benzene. (04)

(b) Describe Lucas test to differentiate between primary, secondary and tertiary alcohols. (04)

(The End)